AMENDMENTS TO THE CLAIMS:

The following listing of claims replaces all prior listings of claims in the present application.

1.(currently amended):   A communication system comprising:

a network unit; and

a plurality of subscriber units connected to the network unit;

the network unit having means [[for]] generating a message in which validity of transmission grant information is set for the subscriber units, means [[for]] generating polling information to allocate a transmission grant to the subscriber units by using the transmission grant information, and means [[for]] suspending a transmission of the polling information for a fixed time in consideration of a processing time of the subscriber units from a time when the message has been completely transmitted.

2.(currently amended):   A communication system comprising:

a network unit; and

a plurality of subscriber units connected to the network unit;

the network unit having means [[for]] generating a message in which validity of transmission grant information is set for the subscriber units, means [[for]] generating polling information to allocate a transmission grant to the subscriber units by using the transmission grant information, input disconnection a detecting means [[for]] detecting a disconnection state of an inputted cell from the subscriber units, and input disconnection detecting switchover a controlling means [[for]] suspending an input disconnection detecting an operation for the

~~transmission grant information~~ of the ~~input disconnection~~ detecting means <u>for detecting the</u>

<u>transmission grant information</u> for a fixed time in consideration of a processing time of the

subscriber units from a time when the message and the polling information have been completely

transmitted.

3.(currently amended): A communication system comprising:

a network unit; and

a plurality of subscriber units connected to the network unit;

the network unit having means [[for]] generating a message in which validity of

transmission grant information is set for the subscriber units, means [[for]] generating polling

information to allocate a transmission grant to the subscriber units by using the transmission

grant information, ~~input disconnection~~ <u>a</u> detecting means [[for]] detecting a disconnection state

of an inputted cell from the subscriber units, and ~~input disconnection detecting switchover~~ <u>a</u>

controlling means [[for]] monitoring a detection result of the ~~input disconnection~~ detecting

means from a time when the message and the polling information have been completely

transmitted and ~~for validating/invalidating~~ <u>validating and invalidating</u> a function for the

transmission grant information of the ~~input disconnection~~ detecting means after respectively

~~detecting/not~~ <u>detecting and not</u> detecting an inputted cell of ~~validity/invalidity~~ <u>validity and</u>

<u>invalidity</u> for the transmission grant information.

4.(currently amended): The communication system as claimed in claim 3 wherein the

network unit is further provided with a timer for respectively ~~validating/invalidating~~ <u>validating</u>

<u>and invalidating</u> a function of the ~~input disconnection detecting switchover~~ controlling means

according to ~~validity/invalidity~~ <u>validity and invalidity</u> of the transmission grant information only after a lapse of a fixed time from a time when the message and the polling information have been completely transmitted.

5.(currently amended):   A communication system comprising:

a network unit; and

a plurality of subscriber units connected to the network unit;

the subscriber units having means [[for]] recognizing a setting of ~~validity/invalidity~~ <u>validity and invalidity</u> of transmission grant information in a message from the network unit, and means [[for]] transmitting a message to the network unit when recognizing the setting of the ~~validity/invalidity~~ <u>validity and invalidity</u> from the message, and

the network unit having means [[for]] generating the message, ~~input~~ ~~disconnection~~ <u>a</u> detecting means [[for]] detecting a disconnection state of an inputted cell, and means ~~for validating/invalidating~~ <u>validating and invalidating</u> the ~~input disconnection~~ detecting means when receiving a message from the subscriber units.

6.(currently amended):   A communication system comprising:

a network unit; and

a plurality of subscriber units connected to the network unit;

the network unit having means [[for]] managing plural kinds of transmission grant information, means [[for]] performing a polling by the transmission grant information, means [[for]] detecting transmission grant information coincident with the transmission grant information set from polling information of a same subscriber unit received by the polling, and

~~subscriber unit identifying~~ means [[for]] identifying a kind of transmission grant information based on the detected transmission grant information and [[for]] distributing an inputted cell.

7.(currently amended): A communication system comprising:

a network unit; and

a plurality of subscriber units connected to the network unit;

the network unit having means [[for]] managing plural kinds of transmission grant information set in a message, means [[for]] notifying a switchover of ~~validity/invalidity~~ validity and invalidity of the transmission grant information to the subscriber units by a message, and means [[for]] executing the switchover of the transmission grant information within the network unit itself after a fixed time in consideration of a processing time of the subscriber units from a time of the notification, and

the subscriber units having means [[for]] executing the switchover of the transmission grant information within the subscriber units themselves after the fixed time from a reception of the message.

8.(currently amended): A communication system comprising:

a network unit; and

a plurality of subscriber units connected to the network unit;

the subscriber units having means [[for]] recognizing a switchover of ~~validity/invalidity~~ validity and invalidity of plural kinds of transmission grant information set in a message, and means [[for]] transmitting a message to the network unit when recognizing the switchover by a message from the network unit, and

the network unit having ~~input disconnection~~ a detecting means [[for]] detecting a

disconnection state of an inputted cell, and means [[for]] executing the switchover of the

transmission grant information within the network unit itself when receiving a message from the

subscriber units and ~~for validating/invalidating~~ validating and invalidating the ~~input~~

~~disconnection~~ detecting means.

9.(currently amended): A communication system comprising:

a network unit; and

a plurality of subscriber units connected to the network unit;

the network unit having means [[for]] managing plural kinds of mini cell

transmission grant information set in a message, means [[for]] notifying a switchover of

~~validity/invalidity~~ validity and invalidity of the mini cell transmission grant information to the

subscriber units by the message, and means [[for]] executing the switchover of the

~~validity/invalidity~~ validity and invalidity of the mini cell transmission grant information within

the network unit itself after a fixed time in consideration of a processing time of the subscriber

units from a time of the notification, and

the subscriber units having means [[for]] executing the switchover of the mini cell

transmission grant information within the subscriber units themselves after the fixed time from a

reception of the message.

10.(currently amended): A communication system comprising:

a network unit; and

a plurality of subscriber units connected to the network unit;

the subscriber units having means [[for]] recognizing plural settings of mini cell transmission grant information set in a message, and means [[for]] transmitting a message to the network unit when recognizing a switchover of the setting by a message from the network unit, and

the network unit having ~~input disconnection~~ a detecting means [[for]] detecting a disconnection state of an inputted cell, and means [[for]] executing the switchover of the setting of the mini cell transmission grant information within the network unit itself when receiving a message from the subscriber units and ~~for validating/invalidating~~ validating and invalidating the ~~input disconnection~~ detecting means.

11.(previously presented): The communication system as claimed in claim 1 wherein the transmission grant information includes physical layer OAM cell transmission grant information and data cell transmission grant information.

12.(new): The communication system as claimed in claim 2 wherein the transmission grant information includes physical layer OAM cell transmission grant information and data cell transmission grant information.

13.(new): The communication system as claimed in claim 3 wherein the transmission grant information includes physical layer OAM cell transmission grant information and data cell transmission grant information.

14.(new):   The communication system as claimed in claim 4 wherein the transmission grant information includes physical layer OAM cell transmission grant information and data cell transmission grant information.

15.(new):   The communication system as claimed in claim 5 wherein the transmission grant information includes physical layer OAM cell transmission grant information and data cell transmission grant information.

16.(new):   The communication system as claimed in claim 6 wherein the transmission grant information includes physical layer OAM cell transmission grant information and data cell transmission grant information.

17.(new):   The communication system as claimed in claim 7 wherein the transmission grant information includes physical layer OAM cell transmission grant information and data cell transmission grant information.

18.(new):   The communication system as claimed in claim 8 wherein the transmission grant information includes physical layer OAM cell transmission grant information and data cell transmission grant information.

AMENDMENTS TO THE SPECIFICATION:

At page 4, paragraph 2, starting on line 9, please change to read as follows:

This message serves to notify the codes of the data cell 10 transmission grant information and the PLOA1\4 cell transmission grant information, and their ~~validity/invalidity~~ validity and invalidity ~~(activation/deactivation)~~ (activation and deactivation) settings to the subscriber unit.

At page 4, last paragraph, starting on last line, please change to read as follows:

The subscriber unit performs the same ~~validity/invalidity~~ validity and invalidity processing as the transmission grant allocation message (see Fig.24) to the notified mini cell transmission grant information if the destination is the subscriber unit itself. Also, as for this transmission grant information, the subscriber unit sets/releases a payload length, an offset value, a service ID of the mini cell transmitted to the transmission grant information.

At page 5, paragraph 4, starting on line 13, please change to read as follows:

In the network unit OLT, a transmission grant information manager 1 manages various transmission grant information and the setting of ~~validity/invalidity~~ validity and invalidity on the subscriber units ONU's one-on-one, and manages the payload length of the cell of the subscriber unit ONU to which the mini cell transmission grant information is allocated, an offset value indicating the position in the slot, and a service ID as for the mini cell transmission grant information.

At page 6, paragraph 3, starting on line 9, please change to read as follows:

In the subscriber unit ONU, a message processor 21 acquires the various transmission grant information from the PLOAM cell extracted at a POLAM cell demultiplexer 22, and sets the ~~validity/invalidity~~ validity and invalidity thereof. As for the mini cell transmission grant information, the message processor 21 further extracts the payload length and the offset value.

At page 7, last paragraph, starting on line 25, please change to read as follows:

Also, as for the mini cell transmission grant information, a single transmission grant information is used for a group. Therefore, when a certain subscriber unit is not found ~~valid/invalid~~ valid and invalid, there are some cases where polling information by the transmission grant information is generated to the other subscriber unit in which the transmission grant information is valid, and there is a possibility that the input disconnection state is similarly detected.

At page 8, last paragraph, starting on line 28, please change to read as follows:

Namely, after transmitting a message to each of the subscriber units, the network unit stops the transmission of polling information to 130 allocate a transmission grant by transmission grant information during a period of the ~~validity/invalidity~~ validity and invalidity of the transmission grant information included in the message being undetermined (during a period of the processing of the subscriber unit being estimated to be completed), and avoids the execution of an input disconnection state (LOST) detection of the subscriber unit. Thus, a malfunction of making the subscriber unit non-operation state can be avoided.

At page 9, last paragraph, starting on line 27, and continuing through the last paragraph of page 10, ending on page 11, line 3, please change to read as follows:

In the invention of claim 3, the network unit has means for generating a message in which validity of transmission grant information is set for the subscriber units, means for generating polling information to allocate a transmission grant to the subscriber units by using the transmission grant information, input disconnection detecting means for detecting a disconnection state of an inputted cell from the subscriber units, and input disconnection detecting switchover controlling means for monitoring a detection result of the input

disconnection detecting means from a time when the message and the polling information have been completely transmitted and ~~for validating/invalidating~~ validating and invalidating a function for the transmission grant information of the input disconnection detecting means after respectively ~~detecting/not detecting~~ detecting and not detecting an inputted cell of ~~validity/invalidity~~ validity and invalidity for the transmission grant information.

Namely, the network unit switches over the ~~execution/non-execution~~ execution and non-execution of the subsequent input disconnection detection based on the ~~presence/absence~~ presence and absence ~~(detection/non-detection)~~ (detection and non-detection) of the inputted cell for the polling information by the transmission grant information, instead of suspending the processing completion for the ~~validity/invalidity~~ validity and invalidity of the transmission grant information in the subscriber unit for a fixed time as in the invention of claim 2.

It is to be noted that a timer may be used to suspend the switchover for a fixed time after the ~~validity/invalidity~~ validity and invalidity of the input disconnection detection is switched over in the invention of claim 3, as in the invention of claim 4.

In the invention of claim 5, the subscriber units have means for recognizing a setting of ~~validity/invalidity~~ validity and invalidity of transmission grant information in a message from the network unit, and means for transmitting a message to the network unit when recognizing the setting of the ~~validity/invalidity~~ validity and invalidity from the message, and the network unit has means for generating the message, input disconnection detecting means for detecting a disconnection state of an inputted cell, and means for ~~validating/invalidating~~ validating and invalidating the input disconnection detecting means when receiving a message from the subscriber units.

Namely, the processing completion of the subscriber unit is not determined only by the network unit as mentioned above, but a message is notified from the network unit to the subscriber unit,[[.]] so that the subscriber unit switches over the ~~validity/invalidity~~ validity and invalidity of the input disconnection detection by the reception of the message.

At page 11, paragraph 3, starting on line 19, please change to read as follows:

In the invention of claim 7, the network unit has means for managing plural kinds of transmission grant information set in a message, means for notifying a switchover of ~~validity/invalidity~~ of the transmission grant information to the subscriber units by a message, and means for executing the switchover of the transmission grant information within the network unit itself after a fixed time in consideration of a processing time of the subscriber units from a time of the notification, and the subscriber units have means for executing the switchover of the transmission grant information within the subscriber units themselves after the fixed time from a reception of the message.

At page 12, paragraph 3, starting on line 8, please change to read as follows:

In the invention of claim 8, the subscriber units have means for recognizing a switchover of ~~validity/invalidity~~ validity and invalidity of plural kinds of transmission grant information set in a message, and means for transmitting a message to the network unit when recognizing the switchover by a message from the network unit, and the network unit has input disconnection detecting means for detecting a disconnection state of an inputted- cell, and means for executing the switchover of the transmission grant information within the network unit itself when receiving a message from the subscriber units and for ~~validating/invalidating~~ validating and invalidating the input disconnection detecting means.

At page 12, last paragraph, starting on line 27, please change to read as follows:

In the invention of claim 9, the network unit has means for managing plural hinds of mini cell transmission grant information set in a message, means for notifying a switchover of ~~validity/invalidity~~ validity and invalidity of the mini cell transmission grant information to the subscriber units by the message, and means for executing the switchover of the ~~validity/invalidity~~ validity and invalidity of the mini cell transmission grant information within the network unit itself after a fixed time in consideration of a processing time of the subscriber units from a time of the notification, and the subscriber units have means for executing the switchover of the mini cell transmission grant information within the subscriber units themselves after the fixed time from a reception of the message.

At page 13, paragraph 3, starting on line 16, please change to read as follows:

In the invention of claim 10, the subscriber units have means for recognizing plural settings of mini cell transmission grant information set in a message, and means for transmitting a message to the network unit when recognizing a switchover of the setting by a message from the network unit, and the network unit has input disconnection detecting means for detecting a disconnection state of an inputted cell, and means for executing the switchover of the setting of the mini cell transmission grant information within the network unit itself when receiving a message from the subscriber units and for ~~validating/invalidating~~ validating and invalidating the input disconnection detecting means.

At page 14, paragraph 5, starting on line 17, and continuing through to page 15, paragraph 2, starting on line 4, please change to read as follows:

Fig. 4 is a time chart shooing an operation example (input disconnection ~~detection/non-detection~~ detection and non-detection timing) of an embodiment (2) of a communication system according to the present invention;

Fig.5 is a block diagram showing an arrangement of an embodiment (3) of a communication system according to the present invention;

Fig.6 is a time chart shooing an operation example (input disconnection ~~detection/non-detection~~ detection and non-detection timing) of an embodiment (3) of a communication system according to the present invention;

Fig.7 is a block diagram showing an arrangement of an embodiment (4) of a communication system according to the present noon;

Figs.8A and 8B are time charts showing an operation example (input disconnection ~~detection/non-detection~~ detection and non-detection timing) of an embodiment (4) of a communication system according to the present invention;

Fig.9 is a block diagram showing an arrangement of an embodiment (5) of a communication system according to the present invention;

Fig.10 is a time chart showing an operation example (input disconnection ~~detection/non-detection~~ detection and non-detection timing) of an embodiment (5) of a communication system according to the present invention;

At page 21, paragraph 2, starting on line 5, please change to read as follows:

It is to be noted that as shown in Fig. 10, a fixed time from the message transmission to the time when the transmission grant information is ~~validated/invalidated~~ validated and invalidated in the subscriber unit ONU, and a fixed time from the message reception to the time when the transmission grant information is made the ~~object/non-object~~ object or non-object of the input disconnection detection in the network unit OLT may be provided as a suspension time.